NORTHERN ARIZONA UNIVERSITY

Department of Mathematics and Statistics

COLLOQUIUM

Tuesday, November 4th, 2014

4:00 – 5:00 pm, Adel Mathematics Bldg., Room 164

(refreshments at 3:45)

Dr. Todd Wolford

Department of Mathematics and Statistics

Northern Arizona University

Analysis of a Model for Continuous Size Structured Fish Populations

Abstract

A size-structured model for a fish population feeding on a single food source is derived. The model includes the features of growth, death and birth of members of the fish population. The food source is non-constant and can change by growth and consumption by the fish population. Steady-state analysis is conducted for the model. Under a variety of biologically reasonable assumptions about the fish population a unique steady state is shown to exist. The stability of this steady state is considered in two ways. First an equation is found relating the eigenfunctions and eigenvalues of the governing equations. Second some specific discretized versions of the model are considered, and stability is shown for these models.

ACGT Seminar: Tuesdays 12:45 – 1:45 pm, AMB 164.

Applied Math Seminar (AMS): Thursdays 12:45 – 1:45 pm, AMB 164.

* Special, extra edition: Tyler Diggans will present his previous MS Thesis work in systems of nonlinear elliptic PDE: Wednesday Nov. 5th, 3pm, #207.

Friday Afternoon Undergraduate Mathematics Seminar (FAMUS) meets Fridays at 3pm, AMB 164